



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|-----------------------|------------------|
| 10/812,053 | 03/30/2004 | Shinichi Nagaoka | Q80741 | 1299 |
| 23373 | 7590 | 03/18/2008 | EXAMINER | |
| SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037 | | | HEITBRINK, JILL LYNNE | |
| | | ART UNIT | | PAPER NUMBER |
| | | 1791 | | |
| | | MAIL DATE | DELIVERY MODE | |
| | | 03/18/2008 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/812,053 | NAGAOKA ET AL. | |
| | Examiner | Art Unit | |
| | Jill L. Heitbrink | 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 01 February 2008.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1,11,13-15 and 17-20 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1,11,13-15 and 17-20 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 12/28/07.

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.

5) Notice of Informal Patent Application

6) Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on Feb. 1, 2008 and Dec. 28, 2007 have been entered.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 11, 13-15 and 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wilson Pat. No. 6,558,605 taken together with either Yu et al. Pat. No. 6,096,088 or Friedl et al. Pat. No. 6,816,820, in view of Norton Pat. No. 6,454,973.

4. Wilson (col. 8, lines 13-22) discloses a process determining the time sequence of the injection molding operation empirically by well known conventional mold fill analyses.

5. Yu (col. 1, lines 11-25 and col. 13, lines 28-44) teaches determining optimum gate locations and processing condition by performing simulation to analyze proposed shapes and injection points which can predict the location of weld lines and air traps.

These analyses are used for the required determination of the injection mold pressure limits for the injection molding machine (col. 1, lines 18-23). Yu (col. 3, lines 1-18) discloses linking the flow analysis from the injection points and providing time steps which would be a time sequence. Friedl (see abstract, col. 1, lines 31-57 and col. 33, lines 29-32) teaches the determining of the number and location of the gates using a numerical analysis and the pressures for filling and packing. It would have been obvious to use the well known and conventional numerical flow analysis and optimization of either Yu or Friedl to determine the time sequence of the gates of Wilson since these produce the desired flow within the mold cavity. Wilson discloses the known software for simulating and optimizing the gate locations and hot runner diameters for a balanced fill (col. 1, lines 28-31) and the alternative use of "conventional mold fill analyses may be used to determine the appropriate sequencing of the gated nozzles to achieve the desired melt front advancement and fill balancing" (col. 8, lines 15-18). Wilson (col. 7, lines 18-24 and claim 1) discusses the controller 68 for the valve gate timing. Friedl clearly uses numerical analysis and computer-aided optimization which is described at col. 1, lines 31-57 and col. 5, line 28-col. 6, line 37. Yu clearly uses numerical analysis and computer-aided optimization which is described at col. 13, lines 12-43. Yu discloses the prediction of weld lines (col. 1, lines 25), the plurality of injection points and the calculation time steps (col. 3, lines 1-17). Clearly the time sequence of the flow within the cavity is simulated from the plurality of gates. Friedl discloses modeling flows of different materials simultaneously or sequentially in the same mold (col. 33, lines 29-31) and thus is related to sequential flow.

6. Norton (col. 1, lines 46-67) teaches the well known problems that are overcome by using time sequenced valve gates in injection molding for providing proper fill of the cavity and optimum clamp tonnage. Norton teaches the solving of the problems of fill balancing and clamp tonnage, such as having more fluid flow into a large area or mass and a smaller amount flow into the small area or mass. Also, see Norton col. 18, lines 5-57 which describe the improvement of disclosed by Norton. Norton discloses multiple gates at col. 1, lines 46-67. It would have been obvious to a person of ordinary skill in the art to use the flow analysis simulations of Yu or Friedl for determining the desired fill sequence and clamping force (pressure) since these are commonly optimized in the injection molding process parameters.

Response to Arguments

7. Applicant's arguments filed Feb. 1, 2008 have been fully considered but they are not persuasive.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill L. Heitbrink whose telephone number is (571) 272-1199. The examiner can normally be reached on Monday-Friday 9 am -2 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jill L. Heitbrink/
Primary Examiner, Art Unit 1791

jlh